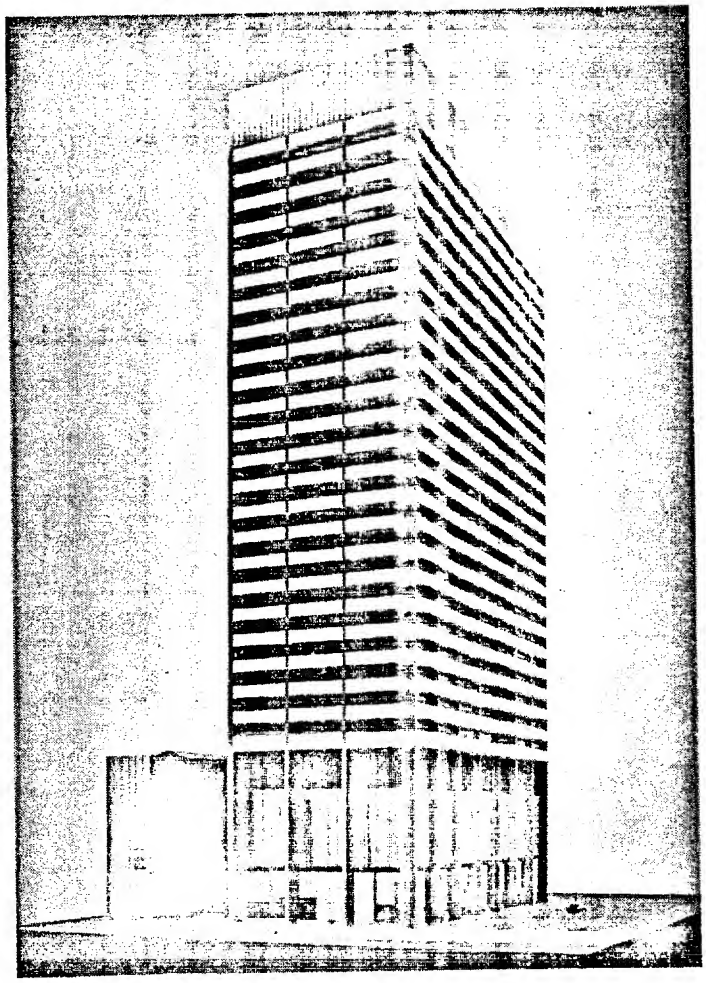
# Giant Panel



**PREFAB PANELS** enclose 24 floors of Time-Life building.

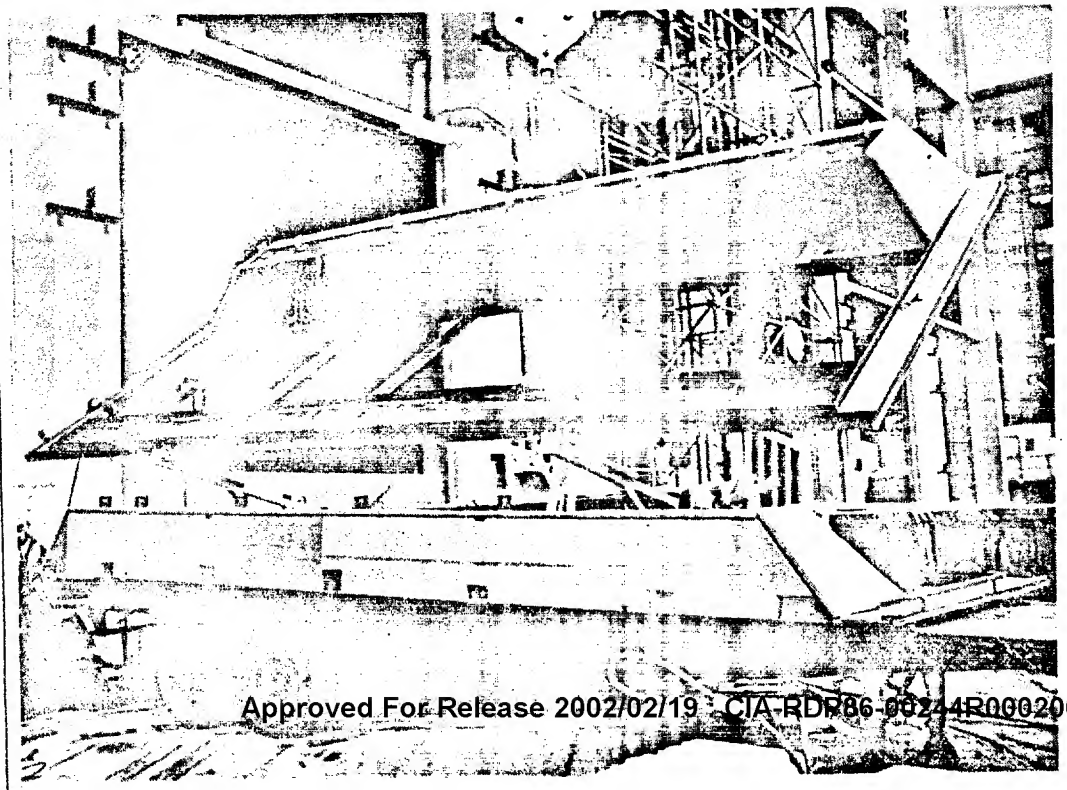
One route to more economical construction is use of the largest possible building components. It was this path that architects chose when they designed the 12 x 30-ft exterior wall panels for the $20-million, 30-story Time-Life building in Chicago.

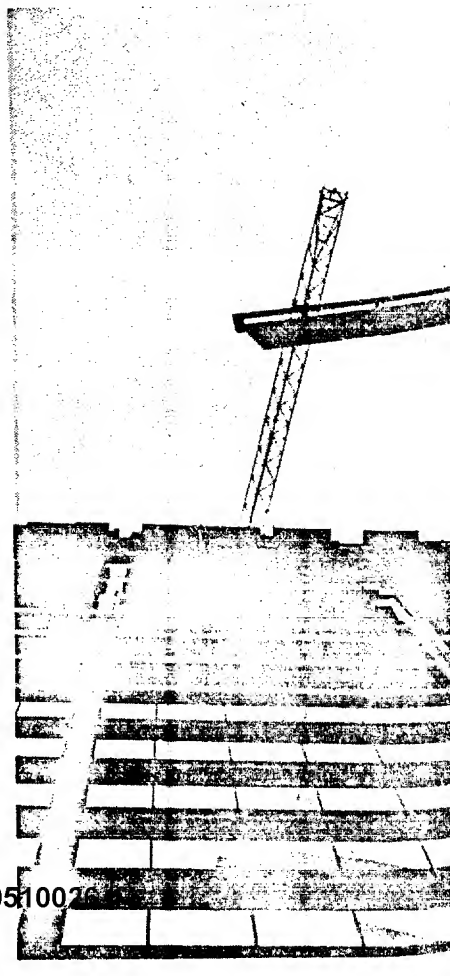
The project architects, Harry Weese & Associates, of Chicago, say they believe the panels are the largest prefabricated window-wall units in the U.S. The panels now being installed are speeding construction, thus lowering field labor costs, according to the firm. In addition to fast erection, the panels' large size sharply reduces the number of panel joints.

The 400-ft-high office building, contains 700,000 sq ft of floor area. Time. Inc. subscription services will occupy half the space, outside tenants the other half. The rectangular tower is three bays wide by seven bays long. Each bay of the reinforced concrete frame is 30-ft square. The tower's middle core provides column-free space on 24 typical office floors.

• **Extra large panels**—The 30-ft distance between column centers, and the

**TRAILER DELIVERS** three panels at a time for tight installation schedule.





# Cut Field Installation Costs

building's typical floor-to-floor height of 12 ft determine the size of the outsize curtainwall panels. Constructed of weathering steel and gold-colored reflecting mirror glass, each panel weighs about 3,500 lb unglazed and 5,100 lb glazed. Each of the 480 panels that enclose the typical office floors costs $2,750 unglazed, for a total cost of $1.32 million.

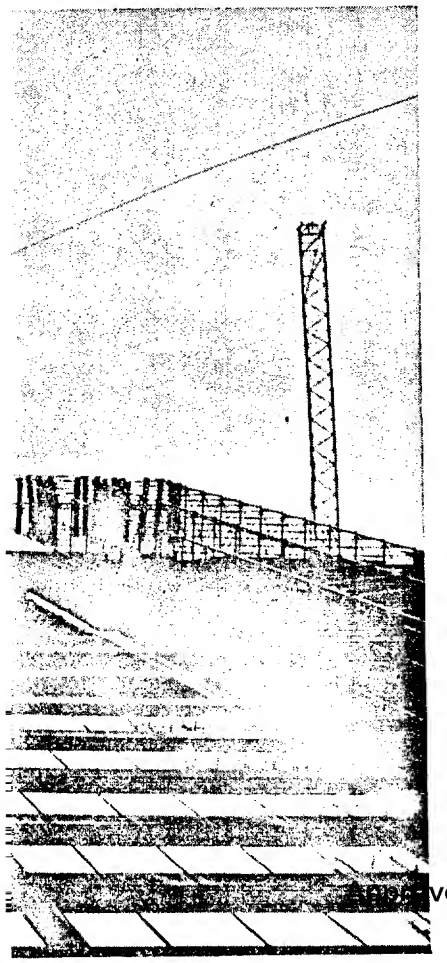
The General Bronze and Steel Weldments divisions of Chicago-based Allied Products Corporation fabricate the panels of ¼-in.-thick steel plate. The tub-like spandrel indentation above the windows is stiffened, 5 ft c-c, with 3-in.-deep Ts having flanges coped to 2-in. wide. Window mullions are 3½-in.-deep Ts with 2-in. flanges. Extensions of the mullions stiffen the flat spandrels above and below the windows on the interior. All parts of the panels are welded and none of the welds is finished.

Steel Weldments break-forms the tub section in two units, each about 14-ft long. Similar to the flat two-piece spandrel below the windows, the units are weld-joined at the center. Mullions and stiffeners are then welded to this assembly. The end sections of the panel that cover the columns are flat plates with a special continuous slot between panels. This slot serves as a track for the scaffold tie-in guides required to prevent the scaffolds from swinging away from the wall during panel erection. The slot also allows for thermal movement of up to ⅜ in., using a steel cover plate and neoprene gasket over the overlapping panels.

• **Panel installation**—Steel Weldments manufactures an average of four panels each day. Workers at the plant stack three completed panels on a flatbed truck trailer for shipment to the site along a carefully mapped route of streets wide enough to accommodate the oversize load. The panels cannot be stacked at the site because storage space is limited. The project's general contractor, Turner Construction Co., of New York City, schedules the use of the job's climbing tower crane for panel erection from 6:30 a.m. to 8:00 a.m. and from 4:30 p.m. to 6:00 p.m. This schedule would have been required with smaller conventional panels. (During regular working hours, the crane is used for steel erection and lifting of other materials). Workers require only about 15 minutes to lift a panel from the ground and fasten it temporarily in place.

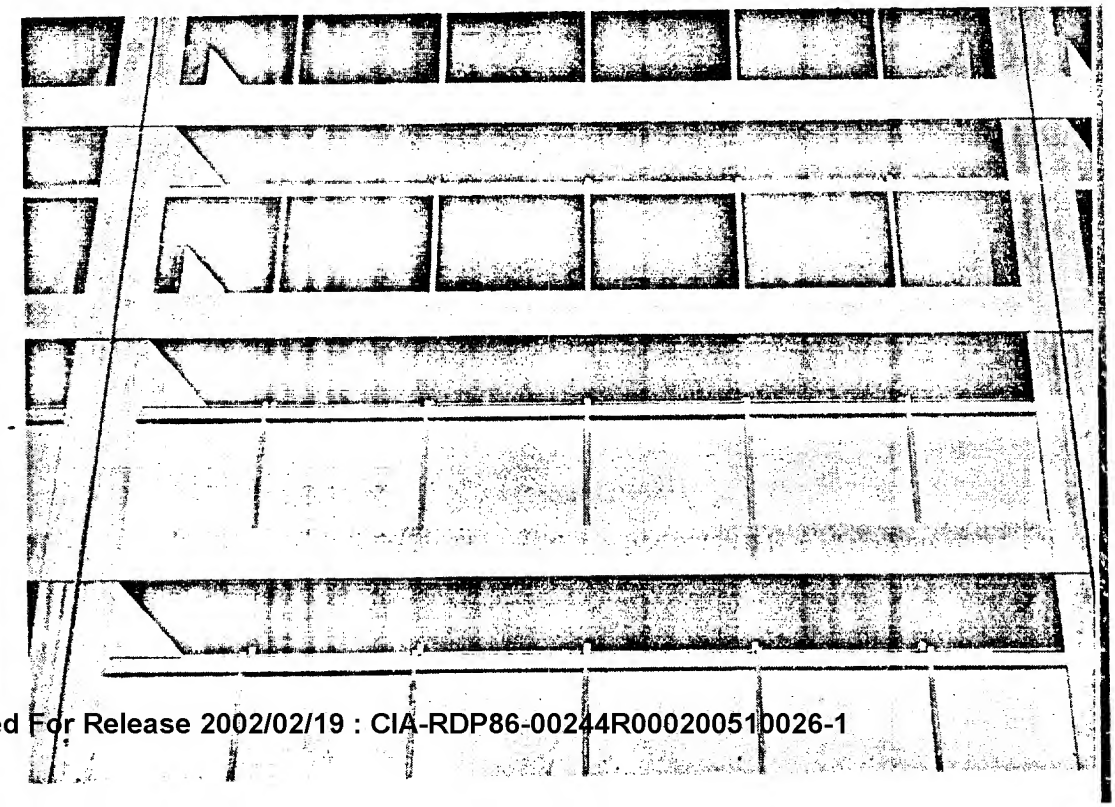
Connections to the concrete building frame, the architect says, are simple. After workers temporarily fasten a panel at several locations, hydraulic jacks on the floor slab and cable jacks fastened to floor clip angles on the building interior lift, lower and pull the panel into final alignment. The bolted connections between clip angles and the panel contain vertical and horizontal holes for erection tolerance and to accommodate thermal movement. Each panel is fixed at the center anchors and hung from the top anchors. And the stiff, tub-like spandrel is held rigid against lateral wind force by anchors at the top of the panel and back of the tub.

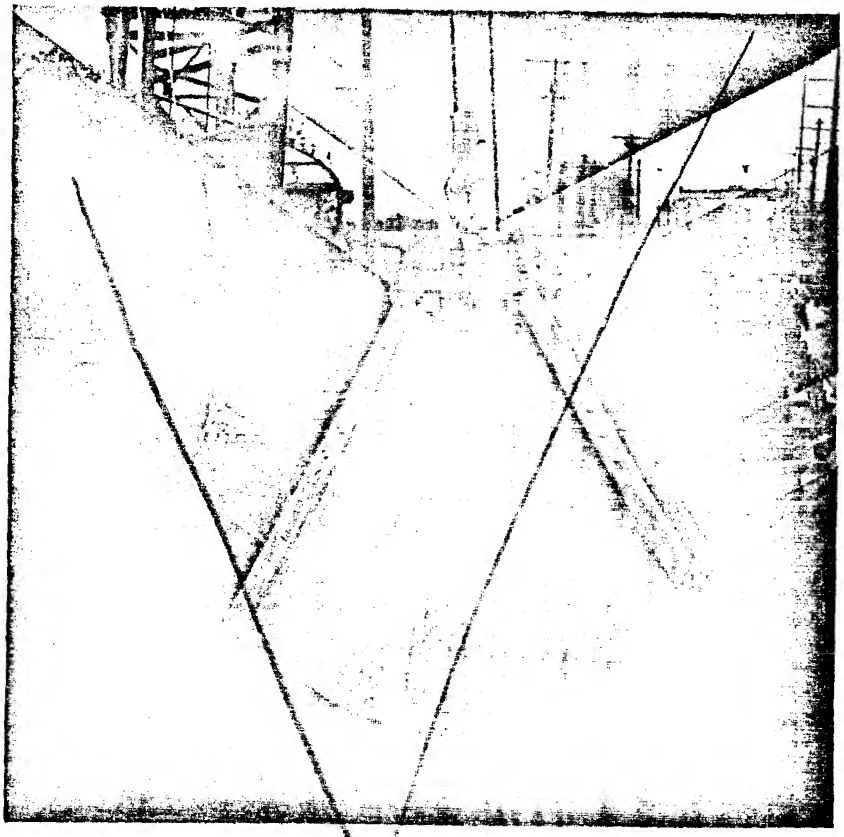
• **Insulation operation**—After a panel is in place, workers apply rigid insulation to pins stud-welded to the back of the wall panels. Some areas, inaccessible after a panel is in place, receive insulation when the panels are on the flatbed

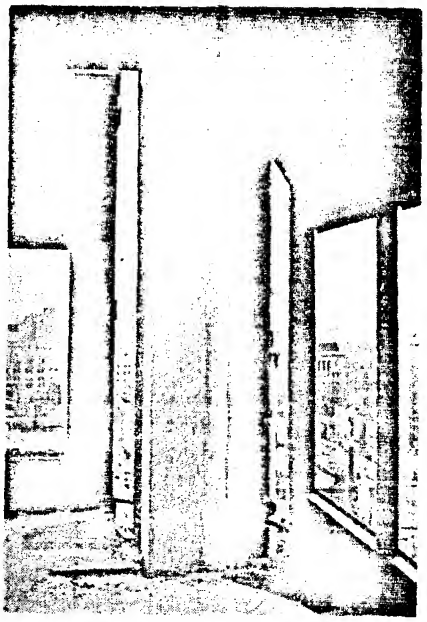


**CLIMBING TOWER CRANE** lifts panel for installation in 15 minutes.

**SINGLE PANELS** fit snugly into and emphasize 12 x 30-ft bay frame.







**DETAIL** of panel at corner of building.

trailer at the site. The rest of the insulation, as well as the glass, is installed from the interior of the building. Workers finish the interior panel surfaces with a sheet vapor barrier—an aluminum and polyester film lamination—and fire-resistant gypsum board fastened to metal framing.

One advantage to using large panels, says the architect, is that the number of panel joints is greatly reduced. The horizontal joints between panels are completely sealed with polysulfide sealant.

The top of each tube is constructed with edges on all four sides and is pitched to the rear of the tub to two 8-in.-long vertical weep tubes built into each panel. The weep tubes will receive any moisture that enters the joints or forms on the inside of the panel and lead it outside without damaging interior finishes.

The primary economic advantage claimed by the architect is that the simplicity of the panel design allows fast erection. Workers install the panels, 20 to a floor, as fast as the concrete frame is ready. Glazing progresses rapidly, so a 90 x 210-ft floor is enclosed in a few days. This permits workers to operate during Chicago's cold winter in relative comfort.

The use of reflecting glass, say the architects, will minimize requirements for curtains or blinds. To cut solar input, the window head was designed to be 6 ft 8 in. above the floor. And the glass is flush with the exterior skin in order to obtain the maximum usable floor area.

The tower's first 18 floors are scheduled for occupancy in October and the entire building is expected to be completed in early 1970.